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In Reply Refer To:

2-21-98-F-247

August 18, 1998

Sandro Amaglio
Regional Environmental Officer
Federal Emergency Management Agency
Region IX, Building 105
Presidio of San Francisco
San Francisco, California 94129

Dear Mr. Amaglio:

The U.S. Fish and Wildlife Service (Service) has reviewed the project plans for the Relocation of Municipal Facilities, Town of Kearny, located in Pinal County, Arizona. This formal consultation was assigned Service number 2-21-98-F-247. The Federal Emergency Management Agency (FEMA) faxed the initiation of formal consultation request letter dated July 17, 1998, to the Service's Arizona Ecological Services field office on July 20, 1998. The original letter arrived the next day by mail. The final biological assessment (BA) was delivered separately to the Service on July 21, 1998. The Service and FEMA found and corrected an error, and the corrected, final pages were delivered to the Service on July 22, 1998. This document represents the Service's biological opinion on the effects of that action on the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. 1531 et seq.).

FEMA has requested concurrence with their effects determination of "may affect, not likely to adversely affect" for the following species: endangered American peregrine falcon (*Falco peregrinus anatum*), cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), bald eagle (*Haliaeetus leucocephalus*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), razorback sucker (*Xyrauchen texanus*), and threatened spikedace (*Meda fulgida*). The Service concurs with FEMA's effects determination for these species.

This biological opinion is based on information provided in the July 21, 1998 BA entitled 1998 Biological Assessment of the Effects to Endangered, Threatened, and Proposed Endangered Species from Construction and Operation of the Lake and Campgrounds, Airport Runway and Facility and the Waste Water Treatment Facility in Kearny, Arizona; the final October, 1994 FEMA environmental assessment; the June 18, 1998 project proposal, as modified, presented, discussed and verbally agreed upon at that meeting; maps, telephone conversations, electronic messages, discussions and field meetings with representatives from FEMA, other agencies and

designated applicants; and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, construction activity and effects, or on other subjects considered in this project. This does not indicate that other sources were not reviewed, or that relevant background information was not provided. A complete administrative record of this consultation is on file in this office.

It is the Service's biological opinion the proposed action will not jeopardize the continued existence of the southwestern willow flycatcher, or adversely modify critical habitat for this species. Critical habitat has been designated at three locations in Arizona, none of which occur at or near the project area. Locations are detailed in this opinion, in the section for Status of the Species.

## CONSULTATION HISTORY

FEMA and the Service began informal discussions regarding the proposed action after the 1993 January flood of the Gila River inundated the municipal facilities located within the 100-year floodplain and rendered then inoperative. The project experienced five years of inadequate funds, project design and personnel changes, and other delays to the ultimate goal of repairing the airport and moving the wastewater plant, lake and campground out of the 100-year floodplain. The May 4, 1998 field review involved the town manager, engineers, consultants, Service and Bureau of Reclamation (BR) biologists. The project was explained and marked out on the ground, and southwestern willow flycatcher habitat and project sites were visited and discussed. Minimization measures for listed species that could be written into the project were suggested and discussed. The Service recommended FEMA initiate formal consultation with the understanding that the Service would make it a top priority. The June 18, 1998 meeting resulted in changes to the project aimed at minimizing adverse effects for the southwestern willow flycatcher, and these were verbally incorporated into the project and agreed upon by all parties present. FEMA stressed their quickly approaching funding deadline, and the Service agreed to expedite the formal consultation process as much as possible. The Service expedited the process by helping edit the draft BA. FEMA faxed their July 17, 1998 letter requesting formal consultation to the Service's Phoenix office on July 20, 1998. The original letter arrived the next day by mail. The final BA arrived at the Service's Phoenix office July 21, 1998. After the Service and FEMA agreed to a text correction by phone, corrected pages were delivered to the Service and the package completed July 22, 1998.

The Service, FEMA, Arizona Division of Emergency Management (ADEM), AGFD, the Town of Kearny, and other parties approached this complex project in a very cooperative manner, adding numerous changes to the proposed project to eliminate or minimize effects to listed species, especially the southwestern willow flycatcher. This led to an efficient consultation process while dealing with several important issues.

# BIOLOGICAL OPINION

## DESCRIPTION OF PROPOSED ACTION

Three main elements make up the proposed project; a new and relocated lake and campground, a new and relocated wastewater treatment plant, and a reconstructed (in situ) airport runway and facility. All these facilities were previously located within the Gila River 100-year floodplain, and were destroyed by the January 1993 flood event. During construction of the new airport runway and facility and closure of the current sewage treatment plant, no work will be performed south of the existing dike (Figures 4 and 5 in the BA), except within 175 feet south of centerline at the east end of the runway. This is where the dike will be breached and a sheet wall installed in the bank (see Airport Runway and Facilities, below).

Discharge currently occurs from the existing sewage treatment plant. Water flows of the same average size and duration will be maintained to the current discharge location via pipeline from a 350,000 gallon effluent storage tank, located at the new and relocated wastewater treatment plant. Water from the existing sewage ponds will be pumped and transported by tank trucks to the new and relocated lake site. All walls that form the existing sewage ponds, except the south walls, will be removed and all construction activities will occur between 15 September and 15 April. These dates are outside the breeding season for the southwestern willow flycatcher and are intended to minimize noise and construction disturbance to the species for the life of the project.

### Lake and Campground Sites

The existing lake site (west of the airport) was flooded and filled in by sediment by the January 1993 flood event. The lake will be relocated outside the 100-year floodplain and established on desert property located approximately 0.85 miles northeast from the current airport site. This land is being purchased by the Town of Kearny (Figure 3 in the BA), and exhibits heavy human-caused use and destruction. The land supports a sparse population of creosote bush (*Larrea tridentata*), prickly pear cactus (*Opuntia* spp.), and saguaro (*Cereus giganteus*) thinly scattered across the area. The general area has extensive off-highway vehicle (OHV) dirt roadways and been used as a dumping area for trash. The land surface is compacted by intense OHV use. No hazardous materials were seen, but metal, plastic, wood and broken glass were observed on the field trip. The area will be cleaned up and trash properly disposed of before the lake and campground sites are constructed.

The groundwater well located at the existing lake site will be abandoned and re-established at the eastern end of the airport. The relocated well, comparable to the original well pumping specifications, will fill and maintain lake levels and maintain water flows to the southwestern willow flycatcher habitat located south of the dike in an emergency. All pavement and structures currently at the existing lake and campground sites will be demolished or removed. The relocated lake will be 9.8 acres and equal to the surface area of the original lake site. The relocated lake

and campground facilities will be similar in scope to the original facilities and include picnicking, toilet facilities, aeration and fish stocking. The relocated lake is a completely enclosed and lined basin, with well water inflow and no outflow. It will be built in accordance to standards required for this type of closed water system, and will be designed to absorb excess water generated from a 100-year flood event in the watershed. These measures will prevent non-native fish from the Gila River, adjoining drainages, or connecting arroyos. During construction at these sites, approximately 50 saguaro cacti (tagged and salvageable) will be removed from the new lake and campground sites and transplanted in the appropriate areas in and around the new sites. The appropriate permits will be obtained, and accepted industry standards for transplanting mature cacti will be followed.

Airport Runway and Facilities

The airport runway will be rebuilt and placed in the same alignment as the current runway which lies parallel to and north of the Gila River. The new runway surface will be raised to the one-foot elevation above the 25-year storm event (Figure 4 in the BA) and will be constructed from concrete, with rip-rap hardening of the side slopes to prevent damage during flood events greater than a 25-year storm event. The total length of the runway will be 3,400 feet, providing a safety extension of 400 feet to allow use by emergency aircraft. This option does not presently exist, due to the short length and state of disrepair of the existing runway. The cross-sectional width will be 60 feet with shoulder and side slopes extending to 60 feet on either side of the runway centerline. This matches the existing, pre-flood runway design. The dike (located between the south side of the runway and the north edge of the southwestern willow flycatcher habitat) will remain intact with the following exception: at the east end of the runway (where it encroaches within 175 feet from the runway centerline), a 650 foot segment of the dike will be breached and a sheet pile wall installed into the bank. This sheet wall is designed to help reduce undercutting and loss of land due to natural hydrological river patterns. Two runway turnouts, an aggregate base access road, and a small aircraft hanger will be built at the northeastern edge of the runway, and a mobile home will be moved to the same area. This will comply with glide slope clearing requirements (Figure 4 in the BA). A taxiway and ten-space small aircraft parking apron will be graded and paved. All construction and related activities at the airport site will cease each year during the breeding season (15 April to 15 September) of the southwestern willow flycatcher for the life of the project.

Compliance with airport safety regulations will require vegetative (tree and shrub) removal within the Building Restriction Line (BRL) of the airport surface area. Ground surfaces within the BRL will be covered with turf grown from native grass seed. Annual vegetative (tree and shrub) trimming for height requirements in the glide and side slopes is expected to occur during and after project completion. This trimming will affect existing and future habitat and components in the project area for southwestern willow flycatcher. Vegetation trimming and pruning will occur within the 20:1 approach slopes (east and west ends of runway) and within the 7:1 transitional slopes (north and south sides) of the runway. Trimming is expected out to 1000 feet from the east and west ends of the runway, and to 375 feet out from centerline of the runway along the north

and south sides. Trimming within the Army Corps of Engineer (CoE) jurisdiction will be done by hand and will cease during the breeding season (15 April to 15 September) of the southwestern willow flycatcher. Riparian habitat south of the dike (on the Gila River) and flycatcher habitat west of the runway will be avoided and undisturbed during reconstruction of the airport facilities.

Wastewater Treatment Plant and Collection System

Two existing wastewater ponds, another sediment-filled original inholding pond and current effluent disposal areas will be abandoned through an approved closure plan (Figure 5 in the BA). All walls (except the south wall) of the sewage ponds will be removed between 15 September and 15 April, which is outside the breeding season for southwestern willow flycatcher. The existing dike will remain in place. The effluent discharge that currently occurs at a point south of the dike wall will remain. Water flows of approximately the same average size and duration will be maintained for habitat enhancement beneficial to the southwestern willow flycatcher. The average discharge will be determined from a review of the Town of Kearny records. A 350,000 gallon effluent storage tank located at the new wastewater treatment plant will maintain this discharge via pipeline.

The new and relocated wastewater treatment plant will be approximately 0.75 miles west of the airport site (just west of the town's baseball field) and near the Gila River (Figure 5 in the BA). The new plant's capacity will be 250,000 gallons per day (gpd), but will be capable 350,000 gpd. Proposed treatment will use an AeroMod System, which utilizes a DRIMAD system for sludge drying, and ultimate sludge disposal will be in the Dudleyville landfill. Treated effluent will be discharged into the Gila River at two locations; the first at the existing discharge site and the second immediately upstream of the new wastewater treatment plant. Discharge to the Gila River will eliminate the need for a storage pond. Treated effluent will meet surface water quality standards adopted by the State of Arizona and subject to approval by the Environmental Protection Agency (EPA). The collection system will be rerouted from the existing plant (in the town's industrial area) to the new site. The existing pump station will be abandoned after rerouting is completed.

## STATUS OF THE SPECIES

Southwestern Willow Flycatcher Description and Status

The southwestern willow flycatcher is a small grayish-green passerine bird (Order Passeriformes; Family Tyrannidae) measuring approximately 14.6 cm (5.75 inches) in length from the tip of the bill to the tip of the tail and weighing only 11 grams (0.4 ounces). It has a grayish-green back and wings, whitish throat, light gray-olive breast, and pale yellowish belly. Two white wingbars are visible (juveniles have buffy wingbars). The eye ring is faint or absent. The upper mandible is dark, the lower is light yellow grading to black at the tip. The song is a sneezy "fitz-bew" or a "fit-a-bew," the call is a repeated "whitt."

One of four currently-recognized willow flycatcher subspecies (Phillips 1948, Unitt 1987, Browning 1993), the southwestern willow flycatcher is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). The historical range of the southwestern willow flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

The southwestern willow flycatcher is a riparian obligate, nesting along rivers, streams, and other wetlands where dense growths of willow (*Salix* sp.), *Baccharis*, buttonbush (*Cephalanthus* sp.), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.) or other plants are present, often with a scattered overstory of cottonwood (*Populus* sp.) and/or willow. These riparian communities provide nesting, foraging, and migratory habitat for the flycatcher.

This species is an insectivore, typically perching on a branch and making short direct flights, or sallying, to capture flying insects. Drost *et al.* (1998) found that the major prey items of the southwestern willow flycatcher, from 15 sites in Arizona and Colorado, consisted of true flies (Diptera); ants, bees, and wasps (Hymenoptera); and true bugs (Hemiptera). Other insect prey taxa included leafhoppers (Homoptera: Cicadellidae); dragonflies and damselflies (Odonata); and caterpillars (Lepidoptera larvae). Non-insect prey included spiders (Araneae), sowbugs (Isopoda), and fragments of plant material. Drost noted significant differences in dietary items based on sites and habitats.

The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995). Critical habitat was designated on July 22, 1997, and a correction notice was published in the Federal Register on August 20, 1997. Eighteen critical habitat units totaling 599 river miles in Arizona, California, and New Mexico were designated. In Arizona, critical habitat was designated along portions of the San Pedro River (100 miles), Verde River (90 miles) including Tavasci Marsh and Ister Flat, Wet Beaver Creek (20 miles), West Clear Creek (9 miles), Colorado River in the Grand Canyon (32 miles), and Little Colorado River and the West, East, and South Forks of the Little Colorado River (30 miles) (USFWS 1997).

Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to over 7000 feet in Arizona and southwestern Colorado. Throughout its wide geographic and elevational range, its riparian habitat can be broadly described based on plant species composition and habitat structure (Sogge *et al.* 1997). Two components that vary less across this subspecies' range are vegetation density and the presence of surface water. Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher. Those types are described below and should be referenced with photographs provided in Sogge *et al.* (1997).

*Monotypic willow:* Nearly monotypic, dense stands of willow (often *Salix exigua* or *S. geyeriana*) 3 to 7 meters in height with no distinct overstory layer; usually very dense structure in at least lower 2 m; live foliage density is high from the ground to canopy.

*Monotypic exotic:* Nearly monotypic, dense stands of exotics such as saltcedar (*Tamarix* sp.) or Russian olive (*Elaeagnus angustifolia*) 4 to 10 meters (m) in height forming a nearly continuous, closed canopy (with no distinct canopy layer); lower 2 m may be very difficult to penetrate due to branch density; however, live foliage volume may be relatively low from 1 to 2 m above ground; canopy density uniformly high.

*Native broadleaf dominated:* Comprised of dense stands of single species (often Goodding's or other willows) or mixtures of native broadleaf trees and shrubs including, but not limited to, cottonwood, willows, boxelder, ash, buttonbush, and stinging nettle from 4 to 15 m in height; characterized by trees of different size classes; may have distinct overstory of cottonwood, willow or other broadleaf species, with recognizable subcanopy layers and a dense understory of mixed species; exotic/introduced species may be a rare component, particularly in understory.

*Mixed native/exotic:* Dense mixtures of native broadleaf trees and shrubs (such as those listed above) mixed with exotic species such as tamarisk and Russian olive; exotics are often primarily in the understory, but may also be a component of overstory; the native and exotic components may be dispersed throughout the habitat or concentrated as a distinct patch within a larger matrix of habitat; overall, a particular site may be dominated primarily by natives, exotics, or be a more or less equal mixture.

Open water, cienegas, marshy seeps, or saturated soil are typically in the vicinity of flycatcher territories and nests; flycatchers sometimes nest in areas where nesting substrates were in standing water (Maynard 1995, Sferra *et al.* 1995, 1997). However, hydrological conditions at a particular site can vary remarkably in the arid Southwest within a season and between years. At some locations, particularly during drier years, water or saturated soil is only present early in the breeding season (i.e., May and part of June). However, the total absence of water or visibly saturated soil has been documented at several sites where the river channel has been modified (e.g., creation of pilot channels), where modification of subsurface flows has occurred (e.g., agricultural runoff), or as a result of changes in river channel configuration after flood events (Spencer *et al.* 1996).

Breeding Biology

The southwestern willow flycatcher begins arriving on breeding grounds in late April and May (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Maynard 1995, Sferra *et al.* 1995, 1997). Nesting begins in late May and early June and young fledge from late June through mid-August (Willard 1912, Ligon 1961, Brown 1988a,b, Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Muiznieks *et al.* 1994, Whitfield 1994, Maynard 1995). Southwestern willow flycatchers typically lay three to four eggs in a clutch

(range = 2-5). The breeding cycle, from laying of the first egg to fledging, is approximately 28 days. Eggs are laid at one-day intervals (Bent 1963, Walkinshaw 1966, McCabe 1991); they are incubated by the female for approximately 12 days; and young fledge approximately 12 to 13 days after hatching (King 1955, Harrison 1979). Southwestern willow flycatchers typically raise one brood per year but have been documented raising two broods during one season (Whitfield 1990). They have also been documented renesting after nest failure (Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Whitfield 1994, Whitfield and Strong 1995).

Southwestern willow flycatcher nests are open cup structures, approximately 8 centimeters (cm) high and 8 cm wide (outside dimensions), exclusive of any dangling material at the bottom. Nests are typically placed in the fork of a branch with the nest cup supported by several small-diameter vertical stems. The main branch from which the fork originates may be oriented vertically, horizontally, or at an angle, and stem diameter for the main supporting branch can be as small as three to four cm. Vertical stems supporting the nest cup are typically one to two cm in diameter. Occasionally, southwestern willow flycatchers place their nests at the juncture of stems from separate plants, sometimes different plant species. Those nests are also characterized by vertically-oriented stems supporting the nest cup. Spencer *et al.* (1996) measured the distance between flycatcher nests and shrub/tree center for 38 nests in monotypic saltcedar and mixed native broadleaf/saltcedar habitats. In monotypic saltcedar stands (n=31), nest placement varied from 0.0 m (center stem of shrub or tree) to 2.5 m. In the mixed riparian habitat (n=7), nest placement varied from 0.0 to 3.3 m.

Height of the nest varies across the southwestern willow flycatcher's range and may be correlated with the species and height of nest substrate, foliage densities, and/or overall canopy height. Southwestern willow flycatcher nests have been found as low as 0.6 m above the ground to 18 m above the ground. Flycatchers using predominantly native broadleaf riparian habitats nest relatively low to the ground (between 1.8 m and 2.1 m on average), whereas those using mixed native/exotic and monotypic exotic riparian habitats nest relatively high above the ground (between 4.3 m and 7.4 m on average).

Historic egg/nest collections and species' descriptions from throughout the southwestern willow flycatcher's range confirm the bird's widespread use of willow for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987, T. Huels *in litt.* 1993, San Diego Natural History Museum 1995). Currently, southwestern willow flycatchers use a wide variety of plant species for nesting substrates primarily including Geyer willow, Goodding's willow, boxelder, saltcedar, Russian olive and live oak. Other plant species that southwestern willow flycatcher nests have been documented in include: buttonbush, black twinberry (*Lonicera involucrata*), Fremont cottonwood, white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), Russian olive, and *S. hindsiana*.

Brood parasitism of southwestern willow flycatcher nests by the brown-headed cowbird (*Molothrus ater*) has been documented throughout the flycatcher's range (Brown 1988a,b, Whitfield 1990, Muiznieks *et al.* 1994, Whitfield 1994, Hull and Parker 1995, Maynard 1995, Sferra *et al.* 1995,

Sogge 1995b). Cowbirds lay their eggs in the nests of other species directly affecting their hosts by reducing nest success. Cowbird parasitism reduces host nest success in several ways. Cowbirds may remove some of the host's eggs, reducing overall fecundity. Hosts may abandon parasitized nests and attempt to renest, which can result in reduced clutch sizes, delayed fledging, and reduced overall nesting success and fledgling survivorship (Whitfield 1994, Whitfield and Strong 1995). Cowbird eggs, which require a shorter incubation period than those of many passerine hosts, hatch earlier giving cowbird nestlings a competitive advantage over the host's young for parental care (Bent 1963, McGeen 1972, Mayfield 1977a,b, Brittingham and Temple 1983). Where studied, high rates of cowbird parasitism have coincided with southwestern willow flycatcher population declines (Whitfield 1994, Sogge 1995a, Sogge 1995c, Whitfield and Strong 1995), or, at a minimum, resulted in reduced or complete elimination of nesting success (Muiznieks *et al.* 1994, Whitfield 1994, Maynard 1995, Sferra *et al.* 1995, Sogge 1995a, Sogge 1995c, Whitfield and Strong 1995). Whitfield and Strong (1995) found that flycatcher nestlings fledged after July 20th had a significantly lower return rate and that cowbird parasitism was often the cause of delayed fledging.

Territory size

Southwestern willow flycatcher territory size, as defined by song locations of territorial birds, probably changes with population density, habitat quality, and nesting stage. Estimated territory sizes are 0.24-1.3 ha for monogamous males and 1.1-2.3 ha for polygynous males at the Kern River (Whitfield and Enos 1996), 0.06-.2 ha for bird in a 0.6-0.9 ha patches on the Colorado River (Sogge *et al.* 1995c) and 0.2-0.5 ha in a 1.5 ha patch on the Verde River (Sogge 1995a).

Rangewide Distribution and Abundance

Unitt (1987) documented the loss of more than 70 breeding locations rangewide, including locations along the periphery and within core drainages that form this subspecies range. Unitt estimated that the rangewide population probably was comprised of 500 to 1000 pairs. The current known population of southwestern willow flycatchers stands at approximately 587 territories (Table 1). Breeding occurs at approximately 75 sites (Sogge *et al.* 1997).

The data presented in Table 1 represents both a summary of current survey data as well as a composite of surveys conducted since 1992. Locations that had southwestern willow flycatchers for only one year were tabulated as if the location is still extant. Given that extirpation has been documented at several locations during the survey period, this method of analysis introduces a bias that may overestimate the number of breeding groups and overall population size. In addition, females have been documented singing. Because the established survey method relies on singing birds as the entity defining a territory (Tibbitts *et al.* 1994), double-counting may be another source of sampling error that biases population estimates upward. The figure of 587 southwestern willow flycatcher territories is a preliminary rangewide estimate for 1997 and is an approximation based on considerable survey effort, both extensive and intensive. Given sampling errors that may bias population estimates positively or negatively (e.g., incomplete survey effort, double-counting males/females, composite tabulation methodology), natural population fluctuation, and random

events, it is likely that the total breeding population of southwestern willow flycatchers fluctuates between 350 and 550 pairs. A substantial proportion of individuals appear to remain unmated. At such low population levels, random demographic, environmental, and/or genetic events could lead to loss of breeding groups and the continued decline of the species. The high proportion of unmated individuals documented during recent survey efforts suggests the southwestern willow flycatcher may already be subject to a combination of these factors (e.g., uneven sex ratios, low probability of finding mates in a highly fragmented landscape).

The results shown in Table 1 demonstrates the critical population status of the flycatcher. More than 75% of the locations where flycatchers have been found are comprised of 5 or fewer territorial birds. Approximately 20% of the locations are comprised of single, unmated individuals. The distribution of breeding groups is highly fragmented, with groups often separated by considerable distances (e.g., approximately 88 kilometer straight-line distance between breeding flycatchers at Roosevelt Lake, Gila Co., Arizona, and the next closest breeding groups known on either the San Pedro River (Pinal Co.) or Verde River (Yavapai Co.). Continued survey efforts may discover additional small breeding groups. To date, survey results reveal a consistent pattern rangewide--the southwestern willow flycatcher population as a whole is comprised of extremely small, widely-separated breeding groups including unmated individuals.

Declining numbers have been attributed to loss, modification, and fragmentation of riparian breeding habitat, loss of wintering habitat, and brood parasitism by the brown-headed cowbird (*Molothrus ater*) (McCarthey *et al.* 1998, Sogge *et al.* 1997). Habitat loss and degradation is caused by a variety of factors, including urban, recreational, and agricultural development, water diversion and groundwater pumping, channelization, and livestock grazing. Fire is an increasing threat to willow flycatcher habitat (Paxton *et al.* 1996). Fire frequency in riparian vegetation increases with dominance by saltcedar (DeLoach 1991), and water diversions or groundwater pumping that results in dessication of riparian vegetation (Sogge *et al.* 1997). The presence of livestock and range improvements such as waters and corrals; agriculture; urban areas such as golf courses, bird feeders, and trash areas may provide feeding sites for cowbirds. These feeding areas coupled with habitat fragmentation, facilitate cowbird parasitism of flycatcher nests (Tibbitts *et al.* 1994, Hanna 1928, Mayfield 1977).

Arizona Distribution and Abundance

Unit (1987) concluded that "Probably the steepest decline in the population level of *E.t. extimus* has occurred in Arizona..." Historic records for Arizona indicate the former range of the southwestern willow flycatcher included portions of all major river systems (Colorado, Salt, Verde, Gila, Santa Cruz, and San Pedro) and major tributaries, such as the Little Colorado River and headwaters, and White River.

As of 1997, 190 territories were known from 41 sites along 12 drainages statewide (Table 1). The majority of breeding groups in Arizona are extremely small; of the 41 sites where flycatchers have been documented, 80% (33) contain 5 or fewer territorial flycatchers. Moreover, 15% to 18% of all sites in Arizona are comprised of single, unmated territorial birds.

As reported by McCarthey *et al.* (1998), the greatest concentrations of willow flycatchers in Arizona in 1997 were near the confluence of the Gila and San Pedro Rivers (146 flycatchers, 76 territories); at the inflows of Roosevelt Lake (74 flycatchers, 39 territories); between Fort Thomas and Solomon on the middle Gila River (32 flycatchers, 18 territories); Topock Marsh on the Lower Colorado River (24 flycatchers, 12 territories); Verde River at Camp Verde (20 flycatchers, 10, territories); Alpine/Greer on the San Francisco River/Little Colorado River (16 flycatchers, 9 territories); and Alamo Lake on the Bill Williams River (includes Santa Maria and Big Sandy River sites) (16 flycatchers, 10 territories). The lowest elevation where territorial pairs were detected was 60 m at Adobe Lake on the Lower Colorado River. Nesting flycatchers were observed as low as 140 m at Topock Marsh and as high a 2530 m at the Greer town site.

In 1997, nest success or failure was documented at 131 of the 171 nesting attempts at 28 sites in Arizona. Of the 135 nests, an estimated 160 flycatchers fledged. The nest failure rate was 48%. Causes of nest failure included predation (29%), brood parasitism (8%), nest abandonment (7%), and unknown causes (3%) (McCarthey *et al.* 1998). Thirty-one percent of all parasitized nests were subsequently abandoned. One nest in Camp Verde, was parasitized, but successfully fledged at least one willow flycatcher. It is important to note that cowbird trapping programs occurred at seven of the monitored nest sites.

Table 2 lists all federal agency actions that have undergone section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide since listing in 1995. As indicated in the table, many activities continue to adversely affect the distribution and extent of occupied and potential breeding habitat throughout Arizona. Stochastic events also continue to adversely affect the distribution and extent of occupied and potential breeding habitat. A catastrophic fire in June of 1996, destroyed approximately one km of occupied habitat on the San Pedro River in Pinal County. That fire resulted in the forced dispersal or loss of up to 8 pairs of flycatchers (Paxton *et al.* 1996).

Reproductive Success

Intensive nest monitoring efforts in California, Arizona, and New Mexico have revealed that: (1) sites with both relatively large and small numbers of pairs have experienced extremely high rates of brood parasitism; (2) high levels of cowbird parasitism in combination with nest loss due to predation have resulted in low reproductive success and, in some cases, population declines; (3) at some sites, the level of cowbird parasitism remains high across years, while at others parasitism varies temporally with cowbirds absent in some years; (4) the probability of a southwestern willow flycatcher successfully fledging its own young from a nest that has been parasitized by cowbirds is low (i.e., <5%); (5) cowbird parasitism and/or nest loss due to predation often result

in reduced fecundity in subsequent nesting attempts, delayed fledging, and reduced survivorship of late-fledged young, and; (6) nest loss due to predation appears fairly consistent from year to year and across sites, generally in the range of 30 to 50%.

Nest loss due to predation is common among small passerine birds. The rates documented for southwestern willow flycatchers are also typical for small passerine (i.e., rates < 50%). However, even at these "typical" levels, nest loss due to predation is a significant factor contributing to low reproductive success. Especially in a depressed population, nest predation presents a difficult management challenge because of the variety of predators. Documented predators of southwestern willow flycatcher nests identified to date include common king snake (*Lampropeltis getulus*) and Coopers hawk (*Accipiter cooperii*) (McCarthey *et al.* 1998, Paxton *et al.* 1997). Efforts to reduce predation may include restricting activities in flycatcher habitat that attract predators, such as camping, picnicking, etc. where pets are loose and refuse is concentrated.

The data presented above and in Table 3 demonstrate that cowbird parasitism and nest depredation are affecting southwestern willow flycatchers throughout their range. Cowbirds have been documented at more than 90% of sites surveyed (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Camp Pendleton 1994, Muiznieks *et al.* 1994, Sogge and Tibbitts 1994, T. Ireland 1994 *in litt.*, Whitfield 1994, C. Tomlinson 1995 *in litt.*, Griffith and Griffith 1995, Holmgren and Collins 1995, Kus 1995, Maynard 1995, McDonald *et al.* 1995, Sferra *et al.* 1995, Sogge 1995, 1996, San Diego Natural History Museum 1995, Stransky 1995, Whitfield and Strong 1995, Griffith and Griffith 1996, Skaggs 1995, Spencer *et al.* 1996, Whitfield and Enos 1996, Sferra *et al.* 1997, McCarthey *et al.*1998). Thus, the potential for cowbirds to be a persistent and widespread threat remains high. Cowbird trapping has been demonstrated to be an effective management strategy for increasing reproductive success for the southwestern willow flycatcher as well as for other endangered Passerines (e.g., least Bell's vireo [*Vireo bellii pusillus*], black-capped vireo [*V. atricapillus*], golden-cheeked warbler [*Dendroica chrysoparia*]). It may also benefit juvenile survivorship by increasing the probability that parents fledge birds early in the season. Expansion of cowbird management programs has the potential to not only increase reproductive output and juvenile survivorship at source populations, but also to potentially convert small, sink populations into breeding groups that contribute to population growth and expansion.

Table 1. Rangewide population status for the southwestern willow flycatcher based on 1996 survey data for New Mexico and California, and 1997 survey data for Arizona, Colorado, Nevada and Utah. Composite data indicated by () represents multi-year survey data for 1993-1996 for New Mexico and California and 1993-1997 for Arizona, Colorado, Nevada and Utah[1].

| State | No. of Sites with Territories (Composite No. of Sites) | No of. Drainages with Territories (Composite No. of Drainages) | No. of Sites (Composite) with Territories | | | |
|---|---|---|---|---|---|---|
| | | | with ≤5 | with 6-20 | with >20 | Total No. of Territories (Composite) |
| Arizona | 41 (65) | 12 (12) | 33 (53) | 8 (9) | 1 (3) | 190 (287) |
| California | 11 (23) | 8 (14) | 7 (17) | 2 (4) | 2 (2) | 91 (130) |
| Colorado | 7 (15) | 6 (11) | 2 (10) | 4 (4) | 1 (1) | 69 (92) |
| New Mexico | 19 (30) | 6 (8) | 16 (26) | 3 (3) | 1 (1) | 209 (232) |
| Nevada | 5 (6) | 3 (3) | 4 (5) | 1 (1) | 0 (0) | 20 (23) |
| Utah | 5 (10) | 4 (7) | 5 (10) | 0 (0) | 0 (0) | 8 (16) |
| Texas | ? | ? | ? | ? | ? | ? |
| Total | 88 (149) | 39 (55) | 67 (121) | 18 (21) | 5 (7) | 587 (780) |

[1] Based on surveys conducted at >800 historic and new sites in AZ (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Muiznieks *et al.* 1994, Sogge and Tibbitts 1994, Sferra *et al.* 1995, 1997, Sogge 1995a, Sogge *et al.* 1995, Spencer *et al.* 1996, McKernan 1997, McKernan and Braden 1998., McCarthey *et al.* 1998); CA (Camp Pendleton 1994, Whitfield 1994, Griffith and Griffith 1995, Holmgren and Collins 1995, Kus 1995, San Diego Natural History Museum 1995, Whitfield and Strong 1995, Griffith and Griffith 1996); CO (T. Ireland 1994 *in litt.*, Stransky 1995); NM (Maynard 1995, Cooper 1996, 1997, Parker 1997, Skaggs 1996, Williams 1995); NV (C. Tomlinson 1995 *in litt*, 1997); UT (McDonald *et al.* 1995, 1997, Sogge 1995b). Systematic surveys have not been conducted in Texas. For sites surveyed multiple years, highest single-year estimate of territories was used to tabulate status data. Tabulations do not include documented extirpations within survey period. Thus, individual state estimates and rangewide totals may be biased upward.

Table 2. Agency actions that have undergone section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide.

| Action (County) | Year | Federal Agency[1] | Incidental Take Anticipated |
|---|---|---|---|
| **Arizona** | | | |
| Cedar Bench Allotment (Yavapai) | 1995 | Tonto NF | Indeterminable |
| Tuzigoot Bridge (Yavapai) | 1995* | NPS | None |
| Windmill Allotment (Yavapai) | 1995 | Coconino NF | Loss of 1 nest annually/for 2 years |
| Solomon Bridge (Graham) | 1995 | FHWA | Loss of 2 territories |
| Tonto Creek Riparian Unit (Maricopa) | 1995 | Tonto NF | Indeterminable |
| Eastern Roosevelt Lake Watershed Allotment (Maricopa) | 1995 | Tonto NF | Indeterminable |
| Cienega Creek (Pima) | 1996 | BLM | 1 nest annually by cowbird parasitism |
| Glen Canyon Spike Flow (Coconino) | 1996 | USBR | Indeterminable |
| Verde Valley Ranch (Yavapai) | 1996* | Corps | Loss of 2 flycatcher territories |
| Modified Roosevelt Dam (Gila/Maricopa) | 1996* | USBR | Loss of 45 territories; reduced productivity/ survivorship 90 birds |
| Lower Colorado River Operations (Mohave/Yuma) | 1997* | USBR | Indeterminable |
| Blue River Road (Greenlee) | 1997 | A/S NF | Indeterminable |
| Skeleton Ridge (Yavapai) | 1997 | Tonto NF | Indeterminable |
| White Canyon Fire - Emergency Consultation (Pinal) | 1997 | Bureau | Harassment of 4 pairs |
| U.S. Hwy 93 Wickenburg (Mohave/Yavapai) | 1997 | FHWA | Harassment of 6 birds in 3 territories and 1 bird killed/decade |
| Safford District Grazing Allotments (Greenlee, Graham, Pinal, Cochise & Pima) | 1997 | Bureau | Indeterminable |
| Lower Gila Resource Plan Amend. (Maricopa, Yavapai, Pima, Pinal, La Paz & Yuma) | 1997 | Bureau | Indeterminable |
| Storm Water Permit for Verde Valley Ranch (Yavapai) | 1997 | EPA | Indeterminable |
| Gila River Transmission Structures (Graham) | 1997 | AZ Electric Power Coop. Inc. | Indeterminable |
| Arizona Strip Resource Mgmt Plan Amendment (Mohave) | 1998 | Bureau | Harm of 1 nest every 3 years |
| CAP Water Transfer Cottonwood/Camp Verde (Yavapai/Maricopa) | 1998 | USBR | Indeterminable |

Table 2. Agency actions that have undergone section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide.

| Action (County) | Year | Federal Agency[1] | Incidental Take Anticipated |
|---|---|---|---|
| Cienega Creek Stream Restoration Project (Pima) | 1998 | Bureau | Harassment of 1 bird |
| Kearny Wastewater Treatment (Pinal) | 1998 | FEMA | in consultation |
| Fort Huachuca Programmatic (Cochise) | 1998 | US Army | in consultation |
| SR 260 Expansion (Yavapai) | 1998 | FHWA | in consultation |
| Wildlife Services (ADC) Nationwide consultation | 1998 | Wildlife Services | in consultation |
| **California** | | | |
| Prado Basin (Riverside/San Bernardino) | 1994 | Corps | None |
| Orange County Water District (Orange) | 1995 | Corps | None |
| Temescal Wash Bridge (Riverside) | 1995 | Corps | Harm to 2 flycatchers |
| Camp Pendleton (San Diego) | 1995 | DOD | Loss of 4 flycatcher territories |
| Lake Isabella Operations 1996 (Kern) | 1996 | Corps | Inundation 700 ac critical habitat; reduced productivity 14 pairs |
| Lake Isabella Long-Term Operations (Kern) | 1997 | Corps | Indeterminable |
| **Nevada** | | | |
| Gold Properties Resort (Clark) | 1995 | BIA | Harm to 1 flycatcher from habitat loss |
| Las Vegas Wash, Pabco Road Erosion Control Structure | 1998 | Corps | Harm to 2-3 pairs of flycatchers |
| **New Mexico** | | | |
| Corrales Unit, Rio Grande (Bernalillo) | 1995 | Corps | None |
| Rio Puerco Resource Area | 1997 | Bureau | None |
| Farmington District Resource Management Plan | 1997* | Bureau | None |
| Mimbres Resource Area Management Plan | 1997* | Bureau | 1 pair of flycatchers |
| Belen Unit, Rio Grande (Valencia) | 1998 | Corps | Consultation in progress |

BIA = Bureau of Indian Affairs; Bureau = Bureau of Land Management; Corps = Army Corps of Engineers; DOD = Dept. of Defense; EPA = Environmental Protection Agency; FEMA = Federal Emergency Management Agency; FHWA = Federal Highway Administration; NF = National Forest;
NPS = National Park Service; USBR = U.S. Bureau of Reclamation; USFS = U.S. Forest Service.

* Jeopardy opinions.

Table 3. Nest predation and brood parasitism rates documented for the southwestern willow flycatcher across its range[1].

| Location | Pre-1993 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| S. Fork Kern River (Kern Co., CA) | | | | | |
| % nests parasitized[2] | 50 - 80 | 38* | 16* | 19* | 11* |
| % nests depredated | 33 - 42 | 37 | 47 | 34 | 28 |
| San Luis Rey River (San Diego Co. CA) | | | | | |
| % nests parasitized | - | -* | 0* | 0* | ? |
| % nests depredated | - | - | 28 | 5 | ? |
| Colorado River (Coconino Co., AZ) | | | | | |
| % nests parasitized | ≥50 | 100 | 44 | 100 | 0 |
| % nests depredated | - | 30 | 78 | 0 | 0 |
| Verde River (Yavapai Co., AZ) | | | | | |
| % nests parasitized | - | 100 | 50 | extirpated | extirpated |
| % nests depredated | - | 100 | 50 | | |
| Little Colorado River (Apache Co., AZ) | | | | | |
| % nests parasitized | - | - | 22 | 0 | 57 |
| % nests depredated | - | - | 33 | 28 | 14 |
| Rio Grande (Socorro Co., NM) | | | | | |
| % nests parasitized | - | - | 20 | 66 | ? |
| % nests depredated | - | - | 40 | 60 | ? |
| Gila River (Grant Co., NM) | | | | | |
| % nests parasitized | - | - | - | 16-27 | ? |
| % nests depredated | - | - | - | 45 | ? |

[1] Sources: Sogge and Tibbitts (1992), Sogge *et al.* (1993), Brown (1994), Maynard 1994, Muiznieks *et al.*(1994), Sogge and Tibbitts (1994), Cooper (1996, 1997), Sferra *et al.* (1997), Skaggs (1995), Sogge (1995a), Sogge *et al.* (1995), Parker (1997), Peterson and Sogge (1996), Spencer *et al.* (1996), Whitfield and Strong (1995), Whitfield and Enos (1996).

[2] Proportion of nests containing at least one brown-headed cowbird egg.

* Brown-headed cowbird control program implemented.

## ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

The project area includes the Town of Kearny, that part of the Gila River approximately 2.0 miles up- and downstream from the town, and the surrounding watershed. The Service lists 11 separate consultations regarding the Town of Kearny and immediate areas. The Ray Mine Expansion (approximately 5.0 miles west and downstream from Kearny) is currently proceeding through the 404 permitting process. The Ray Mine Expansion is not in formal consultation with the Service at this time, but could be in the future.

McCarthey *et al.* (1998) reported that the greatest concentration of southwestern willow flycatchers in Arizona during 1997 were found along lower San Pedro River and the Gila River drainages from the confluence of Aravaipa Creek and the San Pedro to the Florence-Kelvein highway bridge on the Gila River. Both of these rivers are perennial, and the riparian vegetation is dominated by exotic tamarisk, although mature cottonwoods and willows are important aspect of vegetation structure at some sites (Paxton *et al.* 1997). This is a low elevation (555 to 643 meters) site. The habitat within the project area contains occupied nesting flycatcher habitat, surrounded by suitable habitat. The habitat is also dominated by tamarisk, but has young cottonwoods and willows growing scattered patches.

Southwestern willow flycatchers have been documented on the Gila River since 1994. In 1997, AGFD completed intensive raft and foot surveys along the Gila River. As a result, forty-seven willow flycatchers at 11 new sites were documented.

The population of southwestern willow flycatchers at the Kearny site has increased in recent years. In 1994, a single resident flycatcher was detected. In 1996, another survey was conducted and 9 flycatchers (6 territories, 3 pairs) were detected. By 1997, the population grew to 8 territories (8 pairs). Currently, AGFD is conducting the 1998 surveys and to date, 25 territories with 19 pairs have been documented, making this the second largest breeding site of southwestern willow flycatchers in Arizona.

The importance of this site increased in another way as well. Paxton *et al.* (1997) reported that a banded, male flycatcher was detected at the Kearny site. This bird had been displaced from the PZ Ranch site on the San Pedro River after the 1996 catastrophic fire that burned two-thirds of the breeding habitat at that site (Paxton *et al.* 1996).

Although the project area is not within designated critical habitat for the flycatcher, it is important to note that the lower San Pedro River from the gauging station near Aguaja Canyon (T12S, R18E, Section 19) downstream to the confluence of the Gila River (T5S, R15E, Section 23) is designated critical habitat. Paxton et al. (1997) reported that because of their close proximity, flycatchers from the San Pedro/Gila sites have been observed moving between all of the sites. Distance of movement ranged from 2 to 30 km, and eight out of the nine adults that moved were male.

The Kearny habitat site exhibited a sizable amount of effluent discharge on the south side of the dike in the tamarisk habitat during the spring and summer months. This moisture regime, along with dense habitat providing appropriate branching characteristics for nesting, was likely a positive factor contributing to the increase in birds at this site (T. McCarthey, 1998, pers. comm.). Permanent effluent discharge at this site will be maintained as part of the project. Water flow rates, quality, timing, location of discharge, and continuity can be controlled and quantified by the applicant and will maintain and enhance southwestern willow flycatcher habitat. The Gila River lies south of this habitat and may affect the species through naturally-occurring flow events. Future flow events or droughts are not considered effects of this project.

Past Actions

Beaver, which in the early 1800's were abundant in the San Pedro and Gila Rivers and probably defined much of aquatic and riparian habitats, were extirpated. Roads, mining, livestock, grazing, agriculture, water diversion, wood harvesting, and groundwater pumping have caused erosion, channel downcutting, sedimentation, riparian vegetation changes, stream channel alteration, pollution and almost total dewatering of the river. The Gila River, which was historically a moderate-sized perennial river, now flows perennially to the schedule of operations of Coolidge Dam on the San Carlos Apache Reservation.

The Gila River continues to undergo adverse effects from Federal, state and private actions. Development in the bottomlands or floodplains also eliminates portions of the natural riparian area. Changes to the river channel that affect how base flow and flood currents move downstream and across the floodplain have effects on patterns of erosion, aggradation, and maintenance or regeneration or riparian vegetation. Erosion that forms tall, steep banks may prevent flooding of adjacent floodplains and cause changes to the height of the water table. Placement of fill in the floodplain or other actions that constrict, redirect, or change velocity of flow may result in changes in sediment deposition and erosion upstream and downstream. Riparian vegetation may be lost if the water table moves below the level their roots can reach.

The above activities have reduced the quantity of suitable habitat for the southwestern willow flycatcher, through reduction of riparian vegetation and surface water, changes in channel morphology, and other factors.

EFFECTS OF THE ACTION

The airport runway site is close to existing and occupied southwestern willow flycatcher habitat. The Gila River bounds the habitat on the south edge, the dike bounds it on the north edge, and the airport is north of the dike. Sediments deposited after the 1993 flood have built up enough for tamarisk to colonize the site. Suitable habitat for the southwestern willow flycatcher has developed in this location in the intervening five years, as evidenced by their nesting and occupation in the habitat. Distances vary from the runway centerline to habitat edges. At the eastern and western ends of this habitat, distances from runway centerline range from 250 to 400 feet. Greater distances are found along the middle, ranging from 400 to a little more than 600 feet.

Compliance with airport safety regulations require vegetative (tree and shrub) removal within the Building Restriction Line (BRL) of the airport surface area. Ground surfaces within the BRL will be covered with turf grown from native grass seed. Annual vegetative (tree and shrub) trimming for height requirements in the glide and side slopes is expected to occur during and after project completion. This trimming will affect existing and future habitat and components in the project area for southwestern willow flycatcher. Vegetation trimming and pruning will occur within the 20:1 approach slopes (east and west ends of runway) and within the 7:1 transitional slopes (north and south sides) of the runway. Trimming is expected out to 1000 feet from the east and west ends of the runway, and to 375 feet out from centerline of the runway along the north and south sides. All trimming will be done between 15 September and 15 April, outside the breeding season for the species. This direct effect to habitat is considered adverse to the southwestern willow flycatcher because it will limit habitat size or structural development over time.

Airport site construction and related sewage pond removal activities will occur between 15 September and 15 April. These dates are outside the breeding season for the southwestern willow flycatcher. SWCA (1997) reported preliminary results of significantly greater frequency of male southwestern willow flycatcher songs per minute when a backhoe (48 - 50 dBh) was operating across the river from the breeding site. This suggests the males were singing more frequently to compensate for potential interference from human-caused noise. This timing constraint will minimize noise and dust disturbance during the critical times the species uses for territory establishment, mating, nesting, and fledging of young. Completion of the entire project is expected in two years or less (P. Wuerpel, 1998, pers. comm.). The existing habitat south of the dike will be untouched, water flow for maintaining and enhancing habitat will be permanent, site-specific construction activities will occur outside the breeding season, and total project completion will be in two years or less. These short-term activities will avoid adverse effects to the southwestern willow flycatcher.

Direct and/or indirect, long-term effects include enhanced and increased opportunity for additional suitable habitat to develop over time, due to project design and permanent water flow to the habitat during construction. Tamarisk is an invasive species, and is likely to colonize the original holding pond areas. During 1997 and 1998 surveys, all located southwestern willow flycatcher

nests were found to be in tamarisk. By allowing this area to re-vegetate, suitable southwestern willow flycatcher habitat at the Kearny site will be enhanced, aiding in species recovery. The Gila River is a major factor concerning habitat creation or destruction along the entire river and its effects are outside the scope of this document.

Another indirect, long-term effect is noise disturbance during airport use, which will be year-round except in weather extremes. Gary Eide, Kearny Town Manager, reports approximately six to eight small planes (propellor-driven only) per month on average use the airport. The town does not expect growth that would dictate a larger or more complex airport runway, due to its constricted airspace location in the Gila River canyon. Indirect, long-term activities from airport use are not expected to significantly disturb the species due to their short-duration, low-intensity, infrequent occurrence.

The lake and campground site is located approximately 0.85 miles northeast from the airport and southwestern willow flycatcher breeding site. The wastewater treatment plant is located approximately 0.75 miles west of the airport and southwestern willow flycatcher breeding site. Direct effects from construction at these sites will be distant construction noise and dust. Truck traffic, heavy machinery, digging, rock hauling, rock positioning, and other noisy equipment will be used at the lake, campground, and wastewater treatment plant sites. These distances are far enough away from the southwestern willow flycatcher breeding site that construction can be performed in these locations during the breeding season for the flycatcher, and these activities are not expected to result in disturbance to the species.

However, indirect effects from these areas will be distant noise from public use at the lake and campground sites. Distances from the lake and campground sites are far enough away from southwestern willow flycatcher breeding habitat that normal noise is not expected to effect the species. The road leading to the lake and camping sites will be paved, gated, and controlled. The lake and campground sites will be regularly maintained and trash pickup will be such that cans will not be allowed to overflow or contribute to cowbirds using the site as a feeding area, thus exposing the flycatchers to possible increases in nest predation. Effects at these sites are not expected to result in disturbance or harm to the species.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of ESA. The Service knows of no specific future State, local or private proposed projects in this project area. The BA for this project includes a long-term management plan designed to provide a forum for discussion and introduction to interested and involved parties for any future proposed projects in the action area.

Human population growth is expected to occur in the town of Kearny. Increased growth will lead to increased development, increased visitation and recreation (including fishing, boating otherwise water-related activities), increased contamination, increased wildfires, and increased alteration of the watershed and hydrologic regime.

Increasing development along the Gila River may have significant effects on the southwestern willow flycatcher. Effects may be direct on individuals or on habitat. Construction in the 100-year floodplain could destroy or adversely modify habitat. Habitat fragmentation can have direct effects including mortality and overall changes in habitat suitability that can further reduce the carrying capacity of a particular habitat patch. Increased development also has a secondary effect of increasing predatory pets. Increases or changes in the types of potential cowbird foraging sites (i.e. bird feeders, golf courses, corrals, stockyards) may increase the potential for cowbird parasitism of local flycatchers. Increased human disturbance including recreational use of the river floodplains, particularly by off-highway vehicles or river floaters, may also adversely affect habitat.

## SUMMARY

Habitat loss, modification, and fragmentation are the primary factors involved in the decline of the southwestern willow flycatcher (USFWS 1993, 1995) and are the primary threats to the survival and recovery of this species. A total of 587 territories are known rangewide (Table 3) and more than 75% of flycatcher sites are made up of an estimated five or fewer territories.

The habitat in the project area supports a comparatively large population of southwestern willow flycatcher, and supports the second largest number of territories and birds in Arizona for 1998 (McCarthey Tracy 1998, personal communication). This project will protect and enhance existing occupied and suitable habitat. Construction near the habitat will occur outside the species' breeding season, and water flows will be permanently maintained to the habitat. Short-term, adverse effects from this project (vegetative trimming) have been eliminated or appropriately minimized, and short-term, beneficial effects will occur. Long-term, negative effects have been appropriately minimized, and other long-term effects to the species will be beneficial. The management plan included in the BA for this project is designed specifically for enhancement and protection of the southwestern willow flycatcher and its habitat. Additional southwestern willow flycatcher habitat is likely to be created in the project area after project completion.

## CONCLUSION

After reviewing the current status of the southwestern willow flycatcher, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the project as described is not likely to jeopardize the continued existence of the southwestern willow flycatcher. Critical habitat for this species has been designated, as noted in the status of the species in this opinion, and this action does not affect those areas, and no destruction or adverse modification of the critical habitat areas is anticipated.

## INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided such taking is in compliance with the terms and conditions of this incidental take statement.

Sections 7(b)(4) and 7(o)(2) of ESA do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that ESA requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

## AMOUNT OR EXTENT OF TAKE

The Service anticipates incidental take of southwestern willow flycatcher will be difficult to detect for the following reasons: the species is a small-bodied, neotropical migrant passerine; therefore, finding a dead bird or specimen is unlikely; losses may be masked by seasonal fluctuations in numbers, or by other causes (e.g. unusual weather patterns that disturb migration, disease outbreaks in populations). Incidental take could be anticipated by future habitat loss or adverse modification, by harassment of noise during construction activities, and occasional noise from planes using the airport. Incidental take will be considered exceeded if vegetation clearing at the airport site occurs outside the means and timing specified in this opinion under Effects of the Action.

The project does adversely impact habitat due to trimming of vegetation and height clearance requirements for the airport. The project will maintain current habitat and enhance current habitat with permanent water flows. Additional habitat is likely to occur in the project area after project completion. Habitat in the project area could be lost or adversely modified by natural means outside the scope or control of FEMA and the Service, in the form of natural fire, flood events, drought or earthquake. Construction noise and dust at the airport site will not occur eliminated during the breeding season due to time restrictions. Construction noise and dust at the other sites will occur at distances far enough away from flycatcher habitat that they are not considered adverse to the species. Anticipated airport use noise is expected to be short duration, low-intensity, and infrequent.

During the course of the project, if the amount or extent of anticipated incidental take is exceeded, FEMA should immediately reinitiate consultation with the Service to avoid violation of section 9. Operations must cease immediately in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). FEMA will immediately provide a detailed explanation of the causes of the additional taking to the Service. FEMA works with ADEM for project implementation, and ADEM is involved in the project on the ground.

EFFECT OF THE TAKE

The Service, in this biological opinion, has determined this level of anticipated take is not likely to result in jeopardy to the continued existence of this species.

## REASONABLE AND PRUDENT MEASURES

The reasonable and prudent measures (RPM) described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. FEMA has a continuing duty to regulate the activity covered by this incidental take statement. If FEMA (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight or ensure compliance with these terms and conditions, the protective coverage of sections 7(o)(2) may lapse.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take. FEMA will:

1) Ensure, through monitoring and evaluation, that effects are not greater than anticipated;

2) Report and review any new information or project effects, changes, or needed adjustments.

3) Further develop the southwestern willow flycatcher management plan, coordinated and mutually agreed-upon by FEMA, ADEM, the Town of Kearny, the Service, and AGFD.

## TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of ESA, FEMA must comply with the following terms and conditions (T&C), which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

To implement RPM #1, FEMA, during project construction, using AGFD approved protocols, will monitor:

A) all project area sites for any listed species and document additional and/or new information relating to listed species or habitat, and

B) occupied, suitable and potential habitat in the project areas for southwestern willow flycatcher in order to determine if take of species individuals and/or habitat exceeds anticipated take.

To implement RPM #2, FEMA, during project construction, will:

A) Establish a Memorandum of Understanding (MOU) between FEMA, ADEM, the Service, AGFD, Town of Kearny, and others as needed, to annually meet, discuss, evaluate, review and report on project status, and

B) Submit an annual report to the ADEM, the Service, AGFD, and Town of Kearny containing monitoring results, complete and accurate records of all incidental take that occurred during the course of the project, and future project evaluation status, and

C) Submit a final report within eight months of project completion to ADEM, the Service, AGFD, Town of Kearny, containing final records and any additional information concerning the project's completion.

To implement RPM #3, FEMA will:

A) Implement a mutually-agreed upon management plan before the 1999 southwestern willow flycatcher breeding season (15 April). The goal of the management plan shall be to maintain and enhance southwestern willow flycatcher habitats on municipal lands. The plan will identify:

1) Specific management actions that may be conducted to reach this goal.

2) Opportunities to minimize impacts to suitable or potential habitat from activities such as recreation, tourism, bank stabilization efforts, flood control projects, water diversion, and brood parasitism by cowbirds or other actions.

3) Actions that could be taken to reduce the risk of human-caused fires.

## DISPOSITION OF DEAD OR INJURED LISTED ANIMALS

Upon locating a dead or injured threatened or endangered animal, initial notification must be made to the Service's Division of Law Enforcement, 26 North McDonald, Suite 105, Mesa, Arizona, 85201, phone number 602/835-1957, within three working days of its finding. The Service can advise as to handling of dead or injured listed species. Written notification must be made within five calendar days and include the time, date, and location of the animal, a photograph, and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. Injured animals should be transported to a qualified veterinarian by a qualified biologist. Should any treated listed animal survive, the Service should be contacted regarding the final disposition of the animal.

If feasible, the Service will ensure that the remains of intact specimens of listed animal species to be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution prior to implementation of the action.

To the extent this statement concludes take of any threatened or endangered species of migratory bird that will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703-712), or the Bald Eagle Protection Act (BEPA) of 1940, as amended ( 16 U.S.C. 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

## CONCURRENCES

FEMA has requested concurrence regarding the effects determination of "may affect, not likely to adversely affect" for American peregrine falcon, cactus ferruginous pygmy-owl, bald eagle, lesser long-nosed bat, razorback sucker, and threatened spikedace.

As detailed in the BA, formal protocol surveys have been conducted in the project area for the above-mentioned species and species habitat was evaluated.

For American peregrine falcon, no known nest sites exist in or adjacent to the project area, but unknown nest sites could possibly exist in the surrounding mountains. While peregrine falcon have not been detected, the project site and surrounding area provides foraging habitat. Peregrine falcon are known to range as far as 30 miles from nest sites to hunt, and can forage the entire length of the Gila River.

For cactus ferruginous pygmy-owl, habitat that could be used by this species occurs at the lake and campground site. Extensive and repeated protocol surveys were conducted at all project sites in the area. Pygmy-owls were not detected during any surveys, nor heard calling. An approximate total of 10 acres will be occupied by the lake and campground site. Approximately 50 saguaro cacti will be transplanted in and around the project area in appropriate sites. Suitable pygmy-owl habitat occurs throughout the entire Gila River watershed, and further protocol surveys will be conducted in the spring of 1999 (and future years of project construction). If any owls are heard or found, lake and campground construction activities will immediately cease and the Service immediately notified. This will reinitiate consultation between FEMA and the Service.

For bald eagle, no known nest sites exist in or adjacent to the project area. Bald eagles have not been documented at the project area. Wintering bald eagles occur at Winkelman, 10 miles upriver of the project area. Potential roost and foraging habitat exists along the Gila River near the project site, and along the entire river in various places. Treated effluent will meet State of Arizona water quality standards, subject to EPA approval, and will be discharged into the river.

For lesser long-nosed bat, no known maternity, roost or hibernation colony sites occur in or adjacent to the project area. Saguaros in low densities exist in and adjacent to the lake and campground site, and bats may utilize them if they travel through the area. Approximately 50 saguaro cacti are tagged and will be carefully transplanted around the lake and campground site.

For spikedace and razorback sucker, AGFD protocol surveys have not detected these species in or adjacent to the project area. Potential habitat exists in the Gila River for spikedace. Critical habitat has not been designated for this stretch of river for razorback sucker. Treated effluent, meeting State of Arizona water quality standards, subject to EPA approval, will be discharged into the Gila River.

The Service anticipates effects of the proposed project to these species will not be adverse, and concurs with FEMA's effects determination of "may affect, not likely to adversely affect" for these species.

## REINITIATION-CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The Service believes FEMA, ADEM, AGFD, the Town of Kearny, and other involved parties have displayed great adaptability and cooperation to ensure both the success of the project and protection for listed species. We appreciate the open communication and collaboration by all involved, and look forward to future, successful, positive projects.

Please refer to consultation number 2-21-98-F-247 in future correspondence concerning this project, and contact Thetis Gamberg, Angela Brooks or me with any questions or concerns at the Service 's Phoenix Ecological Services office at 602/640-2720.

Sincerely,

Tom Gatz
Acting Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ES)
Field Supervisor, Fish and Wildlife Service, Albuquerque, NM

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In Reply Refer To:
AESO/SE
2-21-98-F-247

February 4, 1999

Mr. Sandro Amaglio
Regional Environmental Officer
Federal Emergency Management Agency
Region IX, Building 105
Presidio of San Francisco
San Francisco, California 94129

Dear Mr. Amaglio:

Per discussions among staff from the Arizona Game and Fish Department, Town of Kearny, and the U.S. Fish and Wildlife Service during the meeting of September 17, 1998, the Service amends the August 18, 1998, Biological Opinion for the Relocation of Municipal Facilities, Town of Kearny, to reflect current conditions. This document is designated Amendment #1 for the biological opinion stated above. History for this project is stated in the August 18, 1998, biological opinion and the administrative record is on file in this office.

Per meeting discussions, the Service deletes the Memorandum of Understanding (MOU) agreement proposed in the original biological opinion. An MOU is unnecessary for the project to be carried forward under the biological opinion. This amendment makes no other changes to the biological opinion and does not alter our conclusion that the proposed action is not likely to jeopardize the continued existence of the southwestern willow flycatcher, *Empidonax traillii extimus*, and is not likely to result in destruction or adverse modification of critical habitat designated for the species.

A management plan for the area involving the Town of Kearny lands adjacent to southwestern willow flycatcher site on the Gila River is enclosed. This management plan is part of the biological opinion.

The Service appreciates your efforts on behalf of listed species. Please contact Thetis Gamberg or Jim Rorabaugh of my staff at 602/640-2720 with any questions or concerns.

Sincerely,

for David L. Harlow
Field Supervisor

Enclosure

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ES-Steve Chambers)
Field Supervisor, Fish and Wildlife Service, Albuquerque, NM

Director, Arizona Game and Fish Department, Phoenix, AZ

KEARNY AMEND#1.WPD:TATG:jh

Management Plan for
Southwestern Willow Flycatcher (SWFL) habitat at
the Town of Kearny airport site
1998 Biological Opinion

GOAL: Conserve and maintain existing suitable SWFL nesting habitat located at Kearny airport site per August 17, 1998, Biological Opinion.

OBJECTIVES:

1. Eliminate construction and maintenance noise at airport site during SWFL breeding season.
2. Maintain quality and quantity of water flow to current SWFL habitat.
3. Trim vegetation to minimal level needed to meet safety clearances with a two-year maintenance trimming schedule.
4. Reduce cowbird attraction at the airport, campground, lake and wastewater treatment sites with stringent trash containment and disposal.
5. Encourage community participation under Town guidance for educational and non-invasive, non-consumptive nature viewing opportunities that do not cause adverse effects to the southwestern willow flycatcher.

IMPLEMENTATION SCHEDULE:

| TASK | PRIMARY PARTY WITH RESPONSIBILITY | TIMING |
|---|---|---|
| Schedule construction and maintenance activities for airport and runway outside SWFL breeding season. | Town of Kearny | Annually |
| Establish and maintain current water flows to site. Establish backup system to supplement primary system. Maintain dated water flow records along with records of site monitoring for flow conditions. Submit brief annual reports (January each year) regarding project status to USFWS, BR, AGFD. | Town of Kearny | 1998-2018. |
| Arrange for qualified SWFL biologist(s) to be present for technical assistance for first vegetative trimming and continued assistance for future vegetative manipulation and trimmings. | Town of Kearny<br><br>Suggested contacts: Susan Sferra, BR and Tracy McCarthey, AGFD. | 1999 and every two years to 2018. |

| | | |
|---|---|---|
| Arrange for adequate lidded trash containers at all project sites covered in this opinion. Arrange for appropriate and timely trash pickup and disposal. Arrange for regular site inspection to ensure compliance. Post and maintain signs at all sites explaining importance of proper trash disposal and keeping lids closed on containers (especially at lake and campground sites) in reducing cowbird attraction in the area. | Town of Kearny<br><br>Contacts for signing project: Marty Jakle, Partners for Wildlife Program, USFWS.<br><br>AGFD Heritage Program<br><br>Audubon Society | 1999-beyond. |
| Work with USFWS and AGFD for funding sources for possible future species-compatible nature viewing in area. The area would be designated and signed as non-smoking. In case of fire, local units would be first responders. A fire management plan for contingencies would be created. | Town of Kearny<br><br>Contacts: Marty Jakle: Partners for Wildlife Program, USFWS, Phoenix.<br><br>AGFD Heritage Fund<br><br>Audubon Society | 1999-beyond. |
| Contact USFWS regarding unforseen effects, impacts, issues, concerns or questions. | Town of Kearny | 1998-beyond. |